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FOREWORD

IFALUK is a small dot on the map: a half a square mile of land can hardly show much detail on any scale used for Pacific distances. Further, it is spelled "Ifalik" on most maps, through some accident in the history of official spelling for place names. The people who live there call their island in a way that might be rendered "Eefahlook" in a sort of English phonetic spelling. We figure that the people who live there ought to have the final say about the name of their island: hence our divergence from the map makers.

Ifaluk is one of the Caroline Islands, which form part of Micronesia. It is some 700 miles north of New Guinea, some 400 miles south of Guam, and about 1200 miles east of the Philippines. It is a part of the Trust Territory of the Pacific Islands, administered by the government of the United States.

Ifaluk is an atoll: a roughly circular reef, built by corals and other lime-secreting organisms, marking off a quiet lagoon in the open ocean, the reef in places piled up to form islets emerging a few feet above the level of the sea. Mr. E. H. Bryan, Jr., of the Bishop Museum, in Honolulu, has compiled a list of the islands of the world that could be classed as "atolls." He finds 409: 136 in Polynesia, 92 in Micronesia, 66 in Melanesia, 15 in Indonesia, 5 northwest of Australia, 68 in the rest of the Indian Ocean, 26 in the Caribbean Sea, and only one in the Atlantic. Atoll formation, then, is primarily a phenomenon of the tropical Pacific: and the word "atoll" carries with it the connotations of warm sun, of white beaches backed by graceful palms, of friendly dark-skinned people, and of an idyllic way of life.

Ifaluk, for us, lived up to these connotations, and we found our life there a continuously rewarding experience: an experience which, in writing this book, we are trying to share.

We tested several ways of meeting the problem of joint authorship. We tried being "we" which had a nice regal sound and worked well enough when we agreed. But we have a great talent for disagreeing,

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114 128 despite the underlying similarity of our points of view. We tried writing in the third person—Marston did this or Don thought that—but wives, friends, editors, said this made pretty flat reading. Finally we decided to split the book: Marston Bates would write the account for the period he was on the atoll; then Donald Abbott would take over for the remaining two months. The reader can thus expect to do one mental somersault, where "I" changes from Bates to Abbott between Chapters IX and X: Bates and Ted Burrows sadly going off with the Trust Territory ship, leaving Abbott with new companions to finish the study.

It is, of course, extremely presumptuous of us—of Abbott and Bates—to write about a study that also involved five other people. But the problems of multiple authorship seem insurmountable in a non-technical book and we wanted, in any case, to write subjectively, to write about our own reactions and feelings as well as about the people and things that we observed. In a very real sense, however, all seven of us achieved a "team approach" in our study of the atoll so that, whether they like it or not, all members of the team must share some responsibility for both the observations and the thoughts that we have expressed here. And certainly there must be a total sharing of the credit for whatever good may have come out of the Ifaluk enterprise.

114 The Ifaluk team consisted of:

Donald P. Abbott, marine biologist, of the Hopkins Marine Station of Stanford University, on Ifaluk from June 22 to November 9, and leader of the expedition from September 12 to the end.

Theodore Arnow, geologist and hydrologist, of the U. S. Geological Survey, on Ifaluk June 22–24 and September 12–28.

Marston Bates, biologist, of the University of Michigan, on Ifaluk from June 22 to September 12.

Frederick M. Bayer, zoologist, of the U. S. National Museum, on Ifaluk from September 12 to November 9.

Edwin G. Burrows, anthropologist, of the University of Connecticut, on Ifaluk from June 22 to September 12, and leader during this time.

Robert R. Harry, ichthyologist, of the George Vanderbilt Foundation, on Ifaluk from September 12 to November 9.

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Joshua I. Tracey, geologist, of the U. S. Geological Survey, on Ifaluk from September 12 to 28. 114

We came curiously and quickly to have a feeling of "belonging" on Ifaluk, and we found ourselves much involved with the people of the island in everything that we did. Inevitably, however, we were more closely associated with some than with others, and it may be helpful to identify here the people with whom we were most concerned, whose names appear most frequently in our narrative: 114 115 115

Fagolier, the paramount chief of Ifaluk.

Maroligar, the number two chief, guardian of the Fan Nap, where we lived.

Toroman, the number three chief and the official divider of food.

Lavausrung, the number four chief; a lady.

Wolpaitik, the number five chief (and the heaviest man on the island).

Totogoeiti (Tom), Ted's interpreter, and top ranking navigator (palu) of the island.

Yaniseman (Yani), "schoolteacher" and constant companion and advisor.

Bakalimar (Bakal), initially assigned as our special helper in camp and field, working later with Harry's fishing gang.

Tachiwelimeng (Tachim), neighbor, friend, and later one of Harry's fishing crew.

Letaweriur, Yani's wife and a composer of dance chants.

Gavileisei, master craftsman and canoe builder.

Gauaisig, an old man, navigator and canoe builder.

Talimeira, houseboy of Burrows and Spiro in 1948, now one of the two local "doctors."

Arueligar, "high priest" or "medicine man."

The Ifaluk study was made under the auspices of the Pacific Science Board, with a grant from the Office of Naval Research. We are particularly indebted to the Director of the Pacific Science Board, Dr. Harold J. Coolidge, and to the secretary of the Washington office, Mrs. Lenore Smith, and the secretary in Honolulu, the late Ernestine Akers, for help of all sorts. 122

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CHAPTER II

MOSTLY ABOUT PEOPLE

THURSDAY, the first day after the NETTLE left, was overcast, with occasional drizzling rains. This was probably just as well because it cut down on the temptation to wander; so we could concentrate on the organization of camp at the Fan Nap.

The Fan Nap—the "Men's House"—was a large structure, some forty feet long and twenty wide, with a high thatched roof that sloped steeply to within a couple of feet of the ground on the sides. The ends were closed with matting down to within four feet of the ground, which meant that any adult must crouch on entering or leaving. The main cross-beams inside were higher, but still low enough to be a constant hazard. I never did learn to use the proper inside-of-house crouch, and kept battering my head all summer. Ted and Don were more alert—or at least better at dodging.

The front part of the Fan Nap, nearest the lagoon, was used for sleeping quarters. Ted and Don had their cots at the sides, under the stringers—beams that had been hewn out of huge breadfruit logs. The logs looked precariously balanced on the heavy coral blocks that served as the corner posts of the house. Collapse of the house would have caused the occupants of the cots to be instantly crushed. The great beams, so close above, were thus at first something of a mental hazard. But they had withstood the gales of many years and were clearly solidly placed—and they were very convenient for hanging mosquito nets.

Tables and boxes were arranged in the central area to make working space. The equipment included carpenter's tools, and with these some

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of the wooden packing boxes were converted into sets of shelves. The cases of food were piled along the sides in the back part of the house, which became the kitchen area, cozily walled with cartons of sliced peaches and spam.

There was an altar in the back part of the Fan Nap that was a constant mental hazard because we did not want to offend the local people by desecrating this shrine with profane objects. The altar was a ramshackle affair, contrasting strongly with the usual Ifalukian workmanship, and this may have indicated that it was not taken very seriously; but we wanted to run no risk of giving offense. There was a large chest there, too, which we judged to be a sort of depository for the appurtenances of government. Among other things, the American flag was stored in the chest, to be hauled out and attached to a pole on the lagoon shore when a ship was sighted.

There was another sacred touch to the Fan Nap—a phallus attached to the main front center post and pointing out across the lagoon. The phallus, which pointed westward toward Woleai, the nearest neighboring atoll, commemorated an event of Ifaluk legend—or history. The story was one of violence and conquest and seemed curiously anomalous in the Ifalukian folklore, contrasting as it did with the present completely non-aggressive and peaceful character of the people. Ted thought that it might reflect memories of an actual conquest by the people of Ifaluk of earlier inhabitants of the neighboring atolls. Maur, the main character in the legend, was certainly the "culture hero" of the people of the island.

The phallus did not seem to be the object of any special veneration or cult—it was just there. Once, later in the summer, when we were trying to explain the money system of the United States, we were questioned about the portrait heads on the coins. Don explained Washington and Lincoln as long-dead "chiefs" thus commemorated.

Yani got the idea at once. "Ifaluk have picture of dead chief, too," he said, grinning, as he pointed toward the phallus of Maur on the Fan Nap.

The weather continued to interfere with the starting of field work. Friday it rained almost continuously all day—and of course the rain

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were tucked in with some old clothes, and seemed contented enough.

In general, the people had fine physiques, and seemed very healthy. There was one woman who looked like an albino with freckles, and another old woman had her nose and upper lip completely eroded away, probably from yaws. Yaws was once prevalent in all of these islands, but it yields quickly to penicillin injections and during the post-war period of American control, the Navy medical service instituted an effective campaign of yaws control.

After the first three households had been completed, the party waded back across the shallow pass to "home" at the Fan Nap for lunch. The weather kept us in for the rest of the day. The sky had been completely overcast all morning, with occasional drizzling rains, but without strong wind. In the afternoon the wind became steadily stronger. It started to tear coconut fronds, even green ones, from the trees, and the coconuts themselves were being blown off in large numbers. Don noticed one coconut fall at an angle of about thirty degrees from the vertical in the wind, and he figured that the wind had the force of eight or nine on the Beaufort scale—gale force.

About four o'clock Maroligar and some other men came around to the Fan Nap and lashed poles and boards across the open western end, where it faced the lagoon. A tent that had been unpacked but not set up was dragged over and lashed to the poles, nicely cutting out the wind and rain and making the interior fairly snug and comfortable. But the noise of the wind and waves outside kept increasing. A typewriter could not be heard four feet away, even in this snug interior. (Ted was typing up his notes from the morning, impervious to typhoons.)

We kept worried eyes on the barometer and on the wildly swaying palms. Men everywhere were out battening down their house walls with matting, and running great ropes from the gables, making them fast to the bases of nearby palms. Maroligar, hovering about the Fan Nap with obvious concern about the guests on the island, made it clear that if things got much worse we should move in to one of the houses farther from the shore.

Then suddenly, about five o'clock, the worryings and speculations were disrupted by a wave of excitement. An airplane had been

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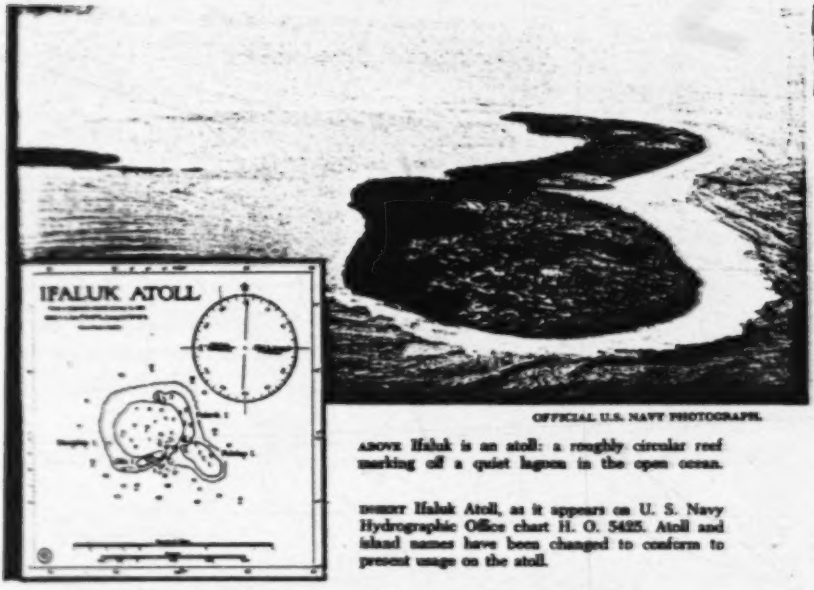

OFFICIAL U.S. NAVY PHOTOGRAPH.

ABOVE Ifaluk is an atoll: a roughly circular reef marking off a quiet lagoon in the open ocean.

INSET Ifaluk Atoll, as it appears on U. S. Navy Hydrographic Office chart H. O. 5425. Atoll and island names have been changed to conform to present usage on the atoll.

BELOW The chiefs turned the Fan Nap, the Men's House, over to us for our residence.

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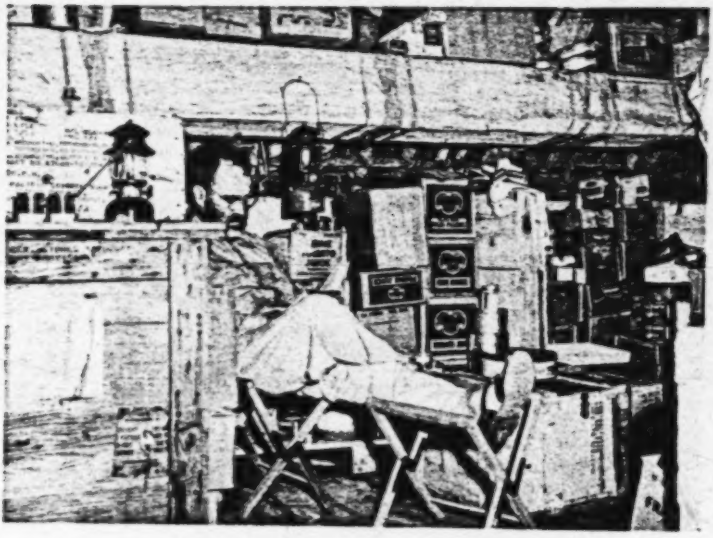

ABOVE Cases of food walled the kitchen area: Ted Burrows sometimes propped himself cozily there to read at night.

BELOW Don proposed a trade of English lessons for lessons in Ifalukian.

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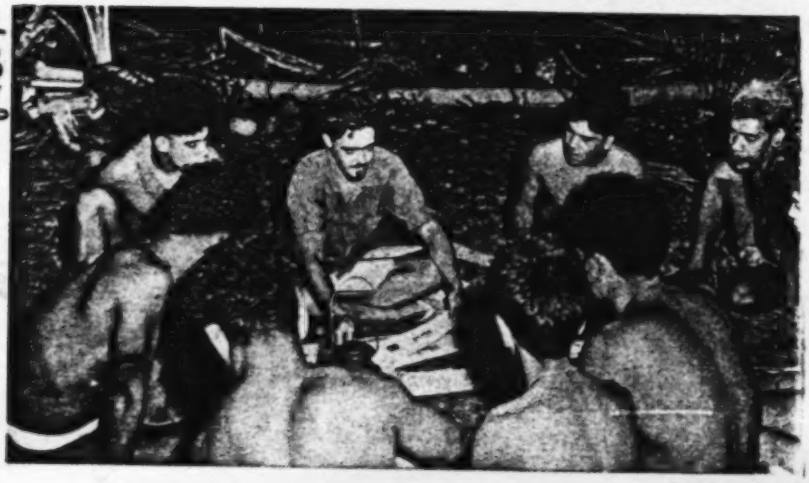

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whether they died in infancy (before they could walk) or later. The ninety-two women of childbearing age or older had had 255 children, of which 151 were still living. Of the 104 deaths, sixty were either stillbirths or infant deaths, which is a high infant mortality by modern Western standards, though probably lower than that of most of the crowded Oriental civilizations.

The menstrual history of every woman was public knowledge on Ifaluk because of the custom of retiring to the menstrual huts. Tufai for a woman, then, has the definite meaning that she has passed menopause, has completed her reproductive history. We got the reproductive history of twenty-eight of these elderly ladies. They had born a total of eighty children, or an average of 2.8 each. Eight of them had had no children; one of them had had ten; most had had two, three or four.

The Ifalukians, like most people who lack a written language or system of records, had amazing memories, and I think that our histories for these women are reasonably accurate. It is difficult to interpret them precisely, of course, because of our lack of data on movement to and away from the island, and the like. Clearly, however, the population is hardly maintaining itself. The Ifalukians loved children, seemed always to want children. I could not, however, get away from a suspicion that the low birth rate reflected some sort of deliberate contraceptive or control practice, beyond such conventional taboos as the prohibition of sexual intercourse during periods of fishing. The language problem, the delicacy of the subject and our reluctance to appear to be prying into personal matters, prevented us from getting any definite information.

The population question in the Pacific is a matter of general concern. All of the islands—Polynesian, Micronesian, Melanesian—showed a great decline in population through the 19th century. The islands had probably been almost free of contagious disease before the explorers, traders, whalers and other Westerners started roaming the Pacific, bringing smallpox, measles, venereal diseases, tuberculosis and the like along with them.

The consequences were devastating, and only in recent years have introduced medicine and sanitation started to counteract the effect of the introduced diseases. Until quite recently, I suspect that most cul-

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were surely as mixed up racially as the Europeans (none of us can afford to be stuffy about purity of race) but the mixture in the Ifalukians must have contained some of the same elements as the European mixture. But how did they get so far away?

Most anthropologists believe that the Pacific islanders moved out from southeast Asia, perhaps around the beginning of the Christian era, when the inhabitants of southeast Asia may have had a larger "Caucasian" component in their racial mixture than now. Despite his daring feat with the Kon-Tiki, few experts have much faith in Thor Heyerdahl's theory of American origin: he certainly proved that cross-Pacific contact is possible, but the evidence of language, culture and race points overwhelmingly to a Malayasian origin. One of the more probable migration routes for the Polynesians is from southeast Asia to the Philippines and through the Caroline islands to the central and south Pacific.

One gets the feeling, in this Polynesian-Micronesian area, of dealing with cultures far more complex than the technology would indicate: of dealing with the remnants of a high culture, of a "civilization." One feels that these same people, with the resources of a continent, could have built Angkor Vat or Copan: and they did produce some spectacular carving and building in places like Ponape and Easter Island. It is easy to understand the lure of the search for some "lost civilization" to account for these cultures; to understand the desire to create a mid-Pacific "continent of Mu" after the fashion of Atlantis. Maybe there is a general human tendency to explain the fascinating with the fabulous. Certainly the Pacific islanders are fascinating enough; but they have given us very few clear clues to either their origin or their history, and the few clues that we have are in part conflicting. Probably we shall never arrive at a clear and unequivocal reconstruction of their past.

But we were absorbed with the Present on Ifaluk. We had not yet acquired a proper Ifalukian shade of brown when we finally managed to finish our census of the people: but even with our strange color, we had already begun to feel at home, to feel "Micronesian" ourselves, a part of the island.

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CHAPTER III

MAPPING THE BOONDOCKS

THE IDEA was to study the human ecology of Ifaluk: the interrelations of man, his culture, and the environment. For man and his culture there was the reservoir of information accumulated by Burrows and Spiro during their 1948 residence on the island: studies which Ted planned to continue during his second visit. Don and I, with the enthusiasm of amateurs, wanted to help in this anthropological work. But there was also the environment to be studied—the land, the reef, the lagoon, the sea, the plants and animals. This "simple" situation—260 people living on half of a square mile of coral rock and sand—was incredibly complex.

When we had finished the counting, weighing and measuring of *Homo sapiens*, the next step seemed to be a start with the environment. The logical first move here was a map, a topographic survey of the situation.

The map problem was greatly simplified by the fact that a little previously a Navy reconnaissance plane had made a series of vertical and oblique aerial photographs of the whole atoll. The Ifalukians were fascinated by these photographs. They seemed to have no trouble at all in grasping the significance of either the vertical or oblique shots, and most people easily recognized the major landmarks, even locating their particular family dwellings. They knew the atoll thoroughly, and the aerial photographs gave them a chance to stand off and look at the whole thing at once, for the first time.

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We picked up that word "boondock" in Guam, and very useful it proved to be. It became an important part of the Abbott-Bates vocabulary, and may well have also infected the Ifalukian speech. In Guam, it was used to refer to the wild tangle of miscellaneous vegetation that had taken over so much of the island after the disruption of the war.

The boondocks on Ifaluk were the parts of the atoll that were not clearly something else—that is, not coconut grove, not taro swamp, not household area. The boondocks were not exactly wild, because all sorts of useful things grew there, including planted coconuts and breadfruit trees. They were not exactly cultivated either. Such areas could thus hardly be called "jungle" or "scrub"; and "forest" seemed rather inappropriate. "Boondock" was just the word; though we could perhaps better have used the Ifalukian equivalent, niwel.

The boundary between the coconut grove and the boondocks was sharply defined: weeds and shrubs were kept cleared out of the coconuts only up to this definite line—the boondock line. This again roughly paralleled the lagoon shore, fifty or sixty yards in. We plotted it on our map, later, when the trail mapping seemed fairly well in hand.

The habitations, deep in the coconut grove and near the boondock line, were grouped into "households." The census showed that there were twenty-six such households on the atoll, eleven on the island of Falalap, and fifteen on Falarik. The Falarik households were not scattered evenly along the highway and lagoon, but formed two clusters or villages, one called Rauau, at the south end of the island—the Fan Nap was in the middle of this—and the other called "Falarik" (the address would probably be "Falarik, Falarik") with a gap of about a quarter of a mile along the broad highway between the two.

The whole system of land ownership of the island was built around these households, each of which had a name. Later in the summer we tried to map the holdings of one household, Falepenach. These holdings included not only the immediate vicinity of the living quarters, but also several patches of boondock and coconut grove on Falarik, and patches in the big taro swamp on Falalap. The patch arrangement seemed to provide that each household would "own" its share of each of the different kinds of land.

The households varied greatly in size, from one which included

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tempt at understanding man's relations with the world around him. With the census finished and the mapping well started, food study had next priority.

Each of us had somewhat different ideas about how to approach this difficult job. In the end, records were kept on four different households for a month each. Two of the studies were made by Ted and two by Don. I am not sure, looking back, why I stayed out of this, because food relations have long been one of my pet interests. I think it was chiefly a matter of economy of effort. Ted and Don had the matter well in hand and each had special advantages: Ted because of his familiarity with local customs and with the language, and Don because of his close association with the invaluable Yani. The daily record taking rapidly became routine, and a pattern formed very early by which each of us established his own special daily routines, thereby avoiding duplication of effort. When to collaborate and when to specialize is a nice problem in the team approach to scientific study. I think we handled the division of labor very well, though not always consciously.

Don and Ted have summarized the results of this food study. The details will be published in scientific papers, but perhaps I can give here a general summary.

The four households included a total of forty people, men, women and children: the average weight per person being 95 lbs. The average daily intake of staple food per person per day was: fresh breadfruit, 175 grams; ripe coconut meat, 130 grams; fish, 105 grams; taro, 70 grams; fermented breadfruit, 60 grams; fresh toddy (sap from coconut flower stalks), 415 cc.; milk from green coconuts, 75 cc.; green coconut meat, perhaps 35 grams.

Calculating food values for these materials is not easy, since most detailed nutritional studies have been made with northern foods. The foods of the tropical Pacific, however, have been studied in Hawaii, and there is a growing literature on nutrition in other parts of the Pacific. From this information, it appears that Ifaluk diet is inadequate in several respects, according to the usual dietary norms. The Ifalukians, however, gave every appearance of having an adequate diet—there were no obvious signs of their being undernourished. I have long

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146 114 come to view with suspicion these tables giving comparative nutritional values for different parts of the world. Truly, much of the world suffers from malnutrition as compared with the United States or Western Europe; but also, I think, our nutritionists have failed to give adequate attention to possibly varying needs. The food needs of man in Ifaluk and of man in New York are not necessarily the same.

121 262 One problem with diet studies is the difficulty of keeping track of snacks, of occasional foods; yet such occasional or incidental food may be very important in relation to some vitamin or mineral requirement. We were very conscious of this problem, and Ted and Don made every effort to keep track of incidental food as well as of staples. Yani was particularly helpful in this, because he tried to remember and report all of the incidental things that he and his friends ate as they wandered about during the day. On this basis, there was considerable variety in the Ifalukian food. At least thirty kinds of plants were eaten in one way or another (not counting "medicines"). Don got records 267 136 of eighty-eight different kinds of fish that were eaten, and guesses that there must be many more. For animals, there were also sea turtles, chickens and other birds, and occasionally pigs and dogs. Some seventeen kinds of molluscs were eaten, eight kinds of crustaceans, and a few other things like sea anemones and one kind of sea urchin.

130 [136] We arrived at the height of the breadfruit season. Breadfruit trees grew everywhere, producing far more fruit than could be used; and the fallen, rotting fruits were probably the chief breeding places of the flies that so plagued us. As the breadfruit harvest dropped later in the summer, so did the numbers of flies.

130 262 Breadfruit in its season (June through September, with a second, smaller crop in February and March) is the staple food, the chief source of starch, for the people of Ifaluk. It is a staple on most of the islands of the tropical Pacific—the "bread" of Polynesia and Micronesia.

130 245 The big, starchy fruits grow on a handsome tree, probably native to Malaya. It may well be among the most anciently cultivated of plants and the main food varieties are seedless, completely dependent on man for reproduction. It is propagated from shoots which spring up around the base of the trunk, and the colonizers of the Pacific—

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000 this or that. We might have done better if we had tried to adapt
[146] directly to the Ifalukian diet, because certainly the Ifalukians looked healthy and husky enough. Perhaps we couldn't have adapted to their varieties of starch in the time available, since changing food habits involves somewhat more than merely changing prejudices, and changing prejudices is not always easy, particularly when there are three people to interact on one another.

● 114 Clearly our own food behavior was not adapted to the atoll conditions, though I am not sure exactly what we did wrong. I always tend to have a skinny, underfed look, in the tropics. It bothers me to have people tell me how well I look after a winter in the north; and how bad I look after a period of tropical residence, because my feelings are exactly the opposite of my appearance. We weighed ourselves periodically on the bathroom scales that we had brought along for weighing the inhabitants of Ifaluk, and I worried a little as I watched the steady drop. But the worry wasn't enough to spoil the pleasure of living in the sun or lazily floating in the lagoon, or enough to jar me into any dietary experiments. We went on opening our cans while we weighed the food at Falepenach and Soumat, dietary intruders but having a wonderful time.